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ABSTRACT

The connection between creativity and education was studied through interviews conducted by 2 interviewers with 53 creative individuals in northern California, selected because they had visibly recognized success in their fields and they were at least 35 years old. Both researchers developed a matrix of themes. There were 10 major themes that ran across the interviews in Researcher A's analysis. Six of these were explicitly predicted based on the writings of John Dewey. The analysis by Researcher B identified 3 major categories under which 14 specific themes were placed. The two approaches seemed to catch different themes, but the themes could be grouped into three major categories: (1) essential background (discipline); (2) habits of inquiry (engagement); and (3) supportive features (landscape). This initial analysis suggests that researchers may want to explore how to develop a curriculum that incorporates the toolbox of habits successful creative individuals have. (SLD)

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Creative Habits and the Meaning-Oriented Curriculum

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Dewey thought teaching should rely primarily on meaning-oriented instruction and encourage students to blend what they experience at home and their communities with what they learn in school. One way instruction might be more meaning-oriented is to have the curriculum focus on themes that are already meaningful in most learners' lives. However, this approach has many structural weaknesses including assumptions about the generalizability of "meaning" to a large group of learners of the same age. An alternative approach to meaning-oriented instruction is to imbue the curriculum with powerful skills that allow learners to find and connect new knowledge that will allow them to expand and deepen their current personal universe of "meaning." It is this second definition that we use when referring to a "meaning-oriented curriculum."

Creative people, while different in myriads of ways, share being involved in the work of creating or deepening new meanings—whether it be in the arts, the sciences, or other endeavors. Furthermore, creative individuals seem to develop general strategies (what Dewey would call "habits") that allow them to have a greater chance of being productive. For example, many creative individuals seem to engage themselves in the process of risk-taking. In essence, risk-taking has become "natural" to them, a Deweyan-habit which increases the probability of them developing new works. In this manner risk-taking is a habit that facilitates their ability to create new connections and meanings.

We hypothesized that by observing the lives of creative individuals we may best be able to identify the key "habits" to be developed in a curriculum that emphasizes skills for creating meaning. While we do not envision every student becoming a creative trailblazer, we think most students *can* potentially develop

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many of the same productive habits as successful creative individuals. Such habits, in turn, will likely increase their ability to find and create meaning in their lives through the development of new connected knowledge, new skills, new values—and consequently through better lived lives.

This study focuses on the potential connection between creativity and education by analyzing interviews with over fifty creative individuals. In a first-stage analysis of interview transcripts we hoped to extract the key themes that are common between these individuals. A second-stage analysis (the focus of this proposal) is being conducted to take a deeper look at one category of themes that emerged in the initial analysis. We hope to learn about the specific habits or strategies that schools may want to pay particular attention to in the aim of developing a strong meaning-oriented curriculum.

Theoretical Rationale

Dewey saw experience as central to learning; he believed that exposing students to new experiences in school, and recognizing each student's personal experiences, are entry points for making meaning and for developing problem solving skills. He defined having *an* experience as "when the material experienced runs its course to fulfillment...a piece of work is finished in a way that is satisfactory. Such an experience is a whole and carries with it its own individualizing quality and self-sufficiency. It is *an* experience" (1934, p. 35). As Sarason rightly points out, "Experience is not knowledge or facts but activity, engagement, from which knowledge about self, process, and materials gets organized" (1990, p.135). Creative individuals—whether in the visual arts, in drama, or in science—are persons who seem to regularly attempt to establish an environment where they increase the likelihood of having *an* experience, the result of which may likely be a new insight, a new work, or a new solution.

Experiences, however, don't just *happen* to us. Some individuals seem better than others at creating the potential for a greater number of significant experiences to occur in their lives. In Dewey's language such individuals may be said to have more productive habits which in turn facilitate the likelihood of the individual experiencing something in such an intense and meaningful manner that it could be described as *an* experience. Philip Jackson described the role of habit in Dewey's thinking when he wrote: "... we are creatures of habit because we bring to each new challenge and to each new opportunity a vast array of resources in the form of attitudes, interests, skills and other acquired characteristics—each of them a habit in Dewey's lexicon and each ready to be put to use" (1998, p.46).

This study attempted to systematically examine individuals who are successful in some sort of creative enterprise. We hoped that we might be able to learn a

great deal from the skills and habits such individuals use—especially for their potential implications in developing a meaning-oriented curriculum.

Methodology

In this study 53 creative individuals in the Northern California Bay Area were interviewed over an eighteen month span of time from August, 1998 to January, 2000. Every individual interviewed fit key criterion for selection, the two most important ones for this study being that they had visible recognized success in their field and that they were 35 years of age or older. The first criteria speaks for itself. The second criteria (age) was important to us because working in many (though not all) creative fields is not financially rewarding. Thus we wanted to make sure we had selected individuals who had lasted long enough in their chosen field that they were likely to be "lifers." The 53 participants included architects, choreographers, musicians, writers, visual artists, scientists, directors, performance artists, poets and individuals from a number of other disciplines.

Typically an interview lasted ninety minutes. There was a common interview protocol for all interviews—including two questions which asked the participants to make connections between their own creative expertise and education. About half of the 21 questions used in the interview protocol were taken from Csikszentmihalyi's study on creativity (Csikszentmihalyi, 1997). The other questions were developed specifically for this research study. All interviews were subsequently transcribed.

We have just finished the initial phase of analysis in which we've read the transcribed interviews without a preset template of themes. Instead, we've tried to pay special attention to seeing what themes emerge from several readings. Since there were two of us we took a somewhat unusual approach to the analysis. Each researcher independently read all the interviews and coded them for themes. Every theme identified for a particular interviewee was linked to specific text where the interviewee brought up the identified theme. In this way the other researcher was able to cross-check the identified themes with the text-links.

With both researchers a matrix of themes was developed. Typically after about a quarter of the readings were complete the researchers identified a small number of overarching themes that were similar across several, though not all, of the interviews. The subsequent 75% of the interviews were then read and the defined themes were either solidified, eliminated, or a small number of new themes were added. Once we had a working list of themes from both researchers, we then did a "compare and contrast" of the two analysis approaches. This

stage involved a great deal of discussion but has resulted in an initial integrated analysis. A brief description of the initial findings is described below.

Initial Results

In this section we describe the analysis results of each researcher and then the integrated analysis results. In this way the reader can see the movement from our initial analyses toward an integrated set of conclusions.

ANALYSIS A

There were ten major themes that ran across the interviews in Researcher A's analysis. A major theme was identified as one that was discussed by 20% or more of the interviewees. (Note: there were many minor themes, but by the nature of the 20% threshold these minor themes were interpreted to be specific only to a small number of individuals and not generalizable.)

Six of the themes we explicitly predicted based on Dewey's writings. They include: 72% *an* experience, 53% exploration and experimentation, 43% energy and focus, 36% training, 30% the role of community, and 21% imagination. Four of the themes were not *a priori* predicted. They include: 53% inspiration, 31% accidents and mistakes, 30% discipline, and 21% observation. Although Researcher A did not specifically predict these themes, it is clear that Dewey would agree that they are equally important in generating learning.

One of the outstanding characteristics of these themes as a whole was the way they speak to the necessity for balance in the working habits of creative individuals. On the one hand the interviewees spoke about the importance of training and the role of discipline. Yet the same interviewees spoke eloquently about exploration and experimentation, the openness they have towards learning from accidents and mistakes, and the predominant role that inspiration plays for many of them. In lay terms most of the interviewees appeared to be both "right brained" and "left brained," both "analytic" and "open," both "laid back" and "tightly focused." These results are consistent with Csikszentmihalyi (1997). Creative individuals seem uniquely able to blend what are usually considered disparate skill sets in order to be effective long-term creative individuals.

Not surprisingly, the majority of subjects spoke eloquently about the role of important experiences as defined by Dewey. One interviewee described the onset of a Deweyan experience as follows: "I had an accident which killed a boy on a bicycle. I was never charged with anything because it was a freak accident…when that accident happened, anyone would have felt devastated, anyone would have felt guilt…but not everyone would have attached it to this preexisting schema. It is related to my creative powers. It is related to my ability to solve problems. It was my first biggest problem. I had to figure how to get through it." This interviewee went on to describe how this intense experience became for

her a piece of work finished in a satisfactory way, and that she was able to pull from it an individualizing quality and a sense of self-sufficiency.

The above interviewee had a unique, and ultimately constructive, way of dealing with a potentially devastating experience. Other interviewees were similar in the sense that challenging experiences in their personal lives propelled them to find meaning in the experience, and often this "meaning" was found or created through developing a new work of art that allowed them to more deeply process the experience. Put differently, creative individuals seem to have constructive habits for how to deal with challenging experiences in their lives.

In addition, and more important from an educational perspective, are the general habits that such individuals cultivate in order to maximize the potential for current or future creative productivity. That is, such people don't rely on life dealing them "tragic intense experiences" but rather try to maximize the potential for creating intense experiences out of which new insights and products may emerge. Of the ten themes identified, the one theme of "*an* experience," seems to be a generally shared phenomenon but not a creative habit *per se*.

The other nine themes appear to be habits which support creating an environment in which it is more probable an individual will have *an* experience. Thus exploration and experimentation, for example, are not sufficient for having *an* experience. However, they do seem to delineate a general skill/attitude that is present, and perhaps necessary, for the individual to have such an intense experience that may result in a new insight or product.

ANALYSIS B

The analysis by Researcher B identified three major categories under which fourteen specific themes were placed. The three categories were: landscape, engagement, and acuity. The category of "landscape" included themes which addressed how the interviewees maintained a general environment which was conducive to their ongoing productivity. The category of "engagement" included themes which identified specific tendencies the interviewees implemented when they were involved in their creative work. Finally, the category of "acuity" included themes that addressed important skills that seemed to be the result of their ongoing involvement in the creative process for a number of years. Each of these categories will be briefly addressed.

Landscape. Interviewees identified models, collaborators, community, and travel as key environmental variables. Interviewees spoke not only of "models" from their early lives, but also ongoing inspirational models in their adult working lives. Role models seemed to be a very important factor for most interviewees as a source of past and current inspiration. To a surprising degree many interviewees also discussed the importance of collaborating with people in the same, or other, disciplines. Some interviewees described the rigorous process they went through to identify and invite new collaborators to work with them. The geographical community interviewees lived in was not random. Most inter-

viewees spoke of moving to the Bay Area for specific reasons that had to do with the general environment being seen as conducive to being able to grow creatively. To a lesser extent interviewees also talked about the role that travel, by visiting and engaging in different cultures, played in their lives. In general the role of travel was seen as important in providing new experiences, often challenging ones, which provoked individuals to re-look at their work in a fresh manner.

Engagement. There were five specific themes which fit under this rubric: process orientation, risk taking, tolerance for ambiguity, making connections, and primacy of perception. Many interviewees spoke of their focus on the process of how they engage in their work rather than the final product (though this was important also). Usually interviewees had an initial vision of the final product, and thus their ability to focus on "process" was due to a clear-enough vision of where they were attempting to go. There were many individuals who spoke to risk taking in both small and big ways. The ability to deal with uncertainty or ambiguity also emerged from most of the interviews. Making connections, while apparent in fewer of the interviews, deals with the how some individuals attempted to actively make sense of the world by connecting their work within a larger framework, a framework that often extended beyond their specific field of expertise. Finally, primacy of perception describes the way in which many interviewees spoke of the careful, patient kind of observation they engaged in when having a new insight or trying to make a product excellent.

Acuity. Five themes fell under this category: openness, critical eye, intuition, heightened sensitivity, and domain expertise. These five themes were grouped together because it was clear from the interviews that these "abilities" were generally the result of years of working in their field, they were not natural talents or skills which they always had. Interestingly enough many interviewees displayed *both* great openness to new experiences while maintaining a healthy critical eye which allowed them to assess the viability of a new project. Intuition is the word used by interviewees to describe how they could increasingly rely on their "gut" feelings as they grew older. Many spoke about a great sensitivity and appreciation of both their field, and creative endeavors in general, as they grew in their fields. Some interviewees also mentioned a heightened sensitivity which permeated their lives in general. Many interviewees indicated they probably had a "higher than normal" sensitivity which led them into their creative work in the first place. Nonetheless a refinement of that initial level of sensitivity seems to be a natural outgrowth of their continued work in a creative endeavor. Finally, most interviewees indicated they had experienced an ongoing development of their domain expertise. Put differently, they didn't see themselves as reaching their creative peak at some earlier time in their lives, but rather they continued to explore new themes and projects with greater dexterity as they matured.

INTEGRATION

The two analysis approaches seemed to "catch" different themes. Sometimes two themes were really the same, or largely the same, even though different

descriptors had been used in the two analysis approaches. The table below outlines our initial integration of the themes from these two analyses.

TABLE 1. Themes Emerging Across Both Analyses

Category	Theme	Synonyms
Discipline (6 themes)	Expertise	*training, domain expertise*
	Critical Eye	
	Focus	*energy, heightened sensitivity*
	Openness	
	Inspiration	
	Intuition	*imagination*
Engagement (5 themes)	Risk Taking	*accidents, mistakes*
	Making Connections	
	Deep Observation	*observation*
	Process Orientation	*primacy of perception*
	Tolerance of Ambiguity	
Landscape (3 themes)	Collaborators	
	Community	*travel*
	Models	

Some of the descriptors of categories or themes remained the same, but during our conversations we also found new, presumably clearer ways of organizing the major themes that emerged across the interviews.

The first category, *discipline*, seemed to capture the spirit of a cadre of themes which essentially described the "skill set" that individuals bring to their creative endeavors. In Researcher A's analysis "discipline" was one of several themes, but in our ensuing discussion it became clear that the notion of "discipline" was more pervasive. Because of that we made it one of our three overarching categories which contain several themes under it. Specifically the idea of discipline seemed to better capture many characteristics that described the *essential background* creative individuals brought to their work. Having expertise and training was clearly important. Interestingly enough, the dual contrasting skills of *critical eye* and *openness* were essential in almost any endeavor. Focus, inspiration, and intuition were also characteristics that many individuals brought to their work. Some of these characteristics fit under Researcher B's category of "acuity," but further discussion led us to conclude that the idea of discipline was more central to the experiences of these creative individuals. These were a collection of habits that individuals brought to bear when beginning a new work.

Many of these habits probably did take years to develop and refine, but over time they became a powerful set of tools which these individuals brought to bear on their work.

The second category, *engagement*, was the same as in Researcher B's initial analysis with some changes in the particular themes. Risk taking, making connections, deep observation, a process orientation, and tolerance for ambiguity all characterized the general ways in which these individuals engaged with new materials, new challenges, and new problems. In general, these were their personal *habits of inquiry* that allowed them to gain a deeper understanding of issues or processes.

The third category, *landscape*, was also the same as in Researcher B's initial analysis. The themes of community, collaboration, and models all spoke to the kinds of *supportive features* that most creative individuals tried to surround themselves with in their environment. Researcher B's theme of travel, for example, was subsumed under the theme of community since either whether at home, or traveling, most creative individuals made very conscious choices about where they lived, the kind of supportive community they formed, and the kinds of challenges they wanted to face and experience through travel.

The resulting three categories which describe the key issues of *essential background* (discipline), *habits of inquiry* (engagement), and *supportive features* (landscape) appear to capture the most salient features that ran across the interviews. Many of the fourteen themes within these three categories seemed to be worthy of serious consideration as potential ways educators could promote the development of more healthy and productive creative habits in their students. Of course, as we take a more careful look at the data we may end up combining or re-labeling some of the above categories.

Connections to the Classroom

In essence we were in search of key "creative habits" which might be able to be taught in schools. Our ultimate intent is to develop better insights into how to create curriculum that develop the skills that allow learners to find and connect new knowledge that will allow them to expand and deepen their personal universe of "meaning." Many of the fourteen themes identified in this initial analysis of fifty-three interviews with creative individuals are amenable to being incorporated into the school environment. The habits of making connections, tolerance of ambiguity, or deep observation (to mention just three) seem to be important skills for developing a deep understanding of many subject areas.

At the beginning of the Twentieth Century Alfred North Whitehead wrote eloquently about the problem of "inert knowledge" (knowledge that learners had

likely stored in memory but could not access or use because the knowledge was not readily available). Whitehead suggested the knowledge was unavailable largely because it was inert, that the knowledge/skills had never been connected with previous knowledge (Whitehead, 1959). Implicit in Whitehead's writing were the themes of meaning, engagement, and connectedness. These are the same themes that generally describe the process by which creative individuals work.

Richard Feynman, the Nobel Prize winner in physics, once wrote about one such creative habit: "I think that when we know that we actually do live in uncertainty, then we ought to admit it; it is of great value to realize that we do not know the answers to different questions. This attitude of mind—this attitude of uncertainty—is vital to the scientist, and it is this attitude of mind which the student must first acquire. It becomes a habit of thought. Once acquired, one cannot retreat from it anymore" (1999, p. 248). Feynman specifically addressed the attitude of uncertainty (or what we termed as "tolerance for ambiguity") as a habit of thought. A similar case could be made for the other identified themes as being complementary habits of thought.

From an educational perspective this initial analysis of the interviews with creative experts suggests we may want to more deeply explore how to develop a curriculum that incorporates the toolbox of habits that successful creative individuals have. As Dewey noted, "Any experience, however trivial in its first appearance, is capable of assuming an indefinite richness of significance by extending its range of perceived connections" (Dewey, 1916, p. 225). These creative habits seem to point to the kinds of tools people use to extend their range of perceived connections. In fact, Jackson aptly wrote, "Which of Dewey's generic traits have the broadest range of applicability when used as conceptual tools to enlighten us about what goes on within art-centered experiences? The two that seem to have the most general have to do with the *expansion of meaning* and the *attainment of a full perception*" (Jackson, 1998, p.112). In this manner Jackson nicely makes the case that artistic, or creative, activity may provide great insight into the essential building-blocks for developing a meaning-oriented curriculum.

If we want to develop a better meaning-oriented curriculum, we should learn as much as possible from those who have been successful at creating lives which are full of meaning—in ways both small and big. The incorporation of key habits has pushed these creative individuals to become more well-rounded then they probably would have become otherwise (contrary to the cut-off-your-ear one-sided view society takes of many artists). While these results are preliminary, they suggest that it is possible to identify key aspects of a curriculum that is effective in creating "connected meaning" if sufficient attention is paid to the development of essential creative habits. Indeed, if greater focus was given just to the engagement themes (or those *habits of inquiry* such as risk taking, making connections, deep observation) we may be able to develop a more powerful

learning experience for students in the classroom as well as providing them with indelible learning-how-to-learn habits for use outside the classroom as well.

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